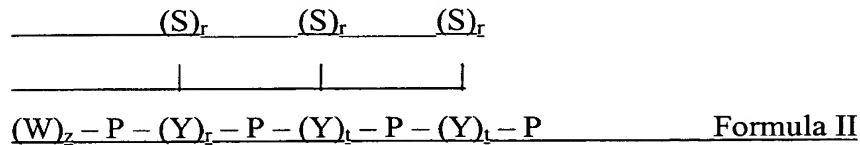


Claim 19. (currently amended) A human ~~A~~ antibody, antigen-binding fragment thereof, or complex thereof comprising at least one antibody or antigen-binding fragment thereof, wherein the antibody, antigen-binding fragment thereof, or complex thereof is capable of binding to or cross reacting with the an isolated epitope of claim 5 comprising the formula



Wherein:

W is any amino acid other than Aspartate and Glutamate

Y is an amino acid selected from the group consisting of Tyrosine, Asparagine, Serine and Threonine

P is independently selected from (A)_m(A)_n(X)_u or (X)_u(A)_n(A)_m or (A)_n(X)_u(A)_m or (A)_n(A)_m(X)_u or (X)_u(A)_m(A)_n or (A)_m(X)_u(A)_n

S is a sulfate or a sulfated molecule

X is any amino acid except Aspartate, Glutamate or Tyrosine

A is independently selected from the group consisting of any negatively charged amino acid, leucine, isoleucine, proline, phenylalanine, serine, and glycine

z is 0, 1, or 2

r is 0 or 1

t is 1, 2 or 3

u is 0 to 2

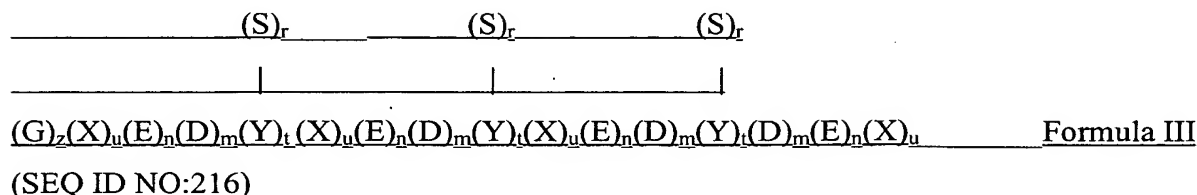
n is 0 to 3

m is 0 to 3

wherein if n = 0 then m > 0; wherein if m = 0 then n > 0; wherein at least one Y is sulfated; and further wherein the antibody, antigen-binding fragment thereof, or complex thereof comprises a first hypervariable region comprising SEQ ID NO: 20.

Claim 20. (currently amended) A human ~~A~~ antibody, antigen-binding fragment thereof, or complex thereof comprising at least one antibody or antigen-binding fragment thereof, wherein the antibody, antigen-binding fragment thereof, or complex thereof is capable of

binding to or cross reacting with ~~the an~~ isolated epitope of ~~claim 9~~ comprising the formula



Wherein:

 G is Glycine
 E is Glutamate
 D is Aspartate
 Y is Tyrosine
 S is sulfate or a sulfated molecule
 X is any amino acid except glycine, glutamate, aspartate and tyrosine
 z is 0, 1, or 2
 t is 1, 2 or 3
 r is 0 or 1
 u is 0 to 2
 n is 0 to 3
 m is 0 to 3

wherein at least one Y is sulfated; wherein if n = 0 then m > 0; wherein if m = 0 then n > 0;
and further wherein the antibody, antigen-binding fragment thereof, or complex thereof
comprises a first hypervariable region comprising SEQ ID NO: 20.

Claim 21. (cancelled)

Claim 22. (currently amended) A process for producing an antibody, antigen-binding fragment thereof, or complex thereof comprising at least one antibody or antigen-binding fragment thereof, wherein the antibody, antigen-binding fragment or complex thereof is capable of binding to or cross reacting with the isolated epitope of any of claims [[1-13]] 18, 19, or 20, comprising the steps of

- (a) providing a phage display library;
- (b) providing an isolated epitope according to any one of claims ~~[[1-13]]~~ 18, 19, or 20;
- (c) panning the phage display library for a phage particle displaying an oligopeptide or polypeptide capable of binding to the isolated epitope; and
- (d) producing an antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof comprising an antibody or binding fragment thereof~~, comprising the peptide or polypeptide capable of binding to the isolated epitope.

Claim 23. (currently amended) ~~A human~~ A ~~An~~ antibody, antigen-binding fragment thereof, or complex thereof comprising at least one antibody or antigen-binding fragment thereof, wherein the antibody, antigen binding fragment or complex thereof are capable of binding the same epitope as having the binding capabilities of the an scFv antibody fragment comprising ~~of~~ SEQ ID NO: 203.

Claim 24. (currently amended) ~~A human~~ A ~~An~~ antibody, antigen-binding fragment thereof, or complex thereof comprising at least one antibody or antigen-binding fragment thereof, wherein the antibody, antigen binding fragment or complex thereof having the binding capabilities of a peptide or polypeptide, wherein the peptide or polypeptide comprises a first hypervariable region comprising or SEQ ID NO: 20.

Claim 25. (currently amended) The antibody, antigen-binding fragment thereof, or complex thereof of claim 24 comprising at least one antibody or binding fragment thereof of any one of claims 23-24, further wherein the peptide or polypeptide has further comprising a second hypervariable region comprising SEQ ID NO: 115 and/or a third hypervariable region comprising SEQ ID NO: 114.

Claim 26. (currently amended) ~~A human~~ A ~~An~~ antibody, antigen-binding fragment thereof, or complex thereof comprising at least one antibody or antigen-binding fragment thereof ~~comprising an antibody or binding fragment thereof~~, that is capable of binding to a peptide or

polypeptide epitope of about 3 to about 126 amino acid residues in length and comprising at least 2 acidic amino acids and at least one sulfated tyrosine residue.

Claim 27. (currently amended) The antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof,~~ of claim 26, wherein the epitope further comprises a proline, leucine, isoleucine, serine, glycine, or phenylalanine residue.

Claim 28. (currently amended) The antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof,~~ of any of claims 23-27, wherein the antibody or antigen-binding fragment thereof further is capable of binding to an epitope on a carbohydrate, peptide, glycolipid, glycoprotein, lipoprotein, and/ or lipopolysaccharide molecule.

Claim 29. (currently amended) The antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof,~~ of claim 28, further wherein the epitope on the carbohydrate, peptide, glycolipid, glycoprotein, lipoprotein, and/ or lipopolysaccharide molecule comprises at least one sulfated moiety.

Claim 30. (currently amended) A human ~~An~~ antibody, antigen-binding fragment thereof, or complex thereof comprising at least one antibody or antigen-binding fragment thereof, that is capable of binding to at least two different molecules selected from the group consisting of PSGL-1, fibrinogen gamma prime (γ'), GP1b α , heparin, lumican, complement compound 4 (CC4), interalpha inhibitor, and prothrombin.

Claim 31. (cancelled)

Claim 32. (currently amended) The ~~An~~ antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof,~~ of claim ~~[[31]]~~30, that is capable of binding to each of PSGL-1, fibrinogen gamma prime (γ'), GP1b α ,

and heparin.

Claim 33. (cancelled)

Claim 34. (currently amended) A human ~~An~~ antibody, antigen-binding fragment thereof, or complex thereof comprising at least one antibody or antigen-binding fragment thereof, wherein the antibody, antigen-binding fragment or complex thereof ~~that~~ is capable of binding to at least two different molecules selected from the group consisting of PSGL-1, fibrinogen gamma prime (γ'), GP1b α , heparin, lumican, complement compound 4 (CC4), interalpha inhibitor, and prothrombin and further is capable of binding to an epitope on a lipid, carbohydrate, peptide, glycolipid, glycoprotein, lipoprotein, and/or lipopolysaccharide molecule.

Claim 35. (currently amended) ~~An~~ The antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof~~, of claim 34, further wherein the epitope on the lipid, carbohydrate, peptide, glycolipid, glycoprotein, lipoprotein, and/ or lipopolysaccharide molecule comprises at least one sulfated moiety

Claim 36. (currently amended) A human ~~An~~ antibody, antigen-binding fragment thereof, or complex thereof comprising at least one antibody or antigen-binding fragment thereof, that is capable of cross-reacting with two or more different epitopes, each epitope comprising one or more sulfated tyrosine residues and at least one cluster of two or more acidic amino acids.

Claim 37. (currently amended) The ~~An~~ antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof~~, of claim 36 that is capable of cross-reacting with PSGL-1.

Claim 38. (currently amended) The ~~An~~ antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof~~, of claim 37 that binds to QATEYEYLDYDFLPETE (SEQ ID NO: 225) wherein at least one tyrosine

residue is sulfated.

Claim 39. (currently amended) ~~The~~An antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof~~, of claim 36 that is capable of cross-reacting with GP1b- α .

Claim 40. (currently amended) ~~The~~An antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof~~, of claim 36 that binds to DEGDTDLYDYYPEEDTEGD (SEQ ID NO: 218) wherein at least one tyrosine residue is sulfated.

Claim 41. (currently amended) ~~The~~An antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof~~, of claim 39 that binds to TDLYDYYPEEDTE (SEQ ID NO: 215) wherein at least one tyrosine residue is sulfated.

Claim 42. (currently amended) ~~The~~An antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof~~, of claim 39 that binds to DEGDTDLYDYYP (SEQ ID NO: 265) wherein at least one tyrosine residue is sulfated.

Claim 43. (currently amended) ~~The~~An antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof~~, of claim 39 that binds to YDYYPEE (SEQ ID NO: 266) wherein at least one tyrosine residue is sulfated.

Claim 44. (currently amended) ~~The~~An antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof~~, of claim 39 that binds to TDLYDYYP (SEQ ID NO: 267) wherein at least one tyrosine residue is sulfated.

Claim 45. (currently amended) ~~The~~An antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof,~~ of claim 36 that is capable of cross-reacting with fibrinogen gamma prime (γ').

Claim 46. (currently amended) ~~The~~An antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof,~~ of claim 45 that binds to EPHAETEDYDSLYPED (SEQ ID NO: 235) wherein at least one tyrosine residue is sulfated.

Claim 47. (currently amended) ~~The~~An antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof,~~ of claim 36 that is capable of cross-reacting with heparin.

Claim 48. (currently amended) ~~The~~An antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof,~~ of claim 36 that is capable of cross-reacting with complement compound 4 (CC4).

Claim 49. (currently amended) ~~The~~An antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof,~~ of claim 48 that binds to MEANEDYEDYEYDELPK (SEQ ID NO: 224) wherein at least one tyrosine residue is sulfated.

Claim 50. (cancelled)

Claim 51. (currently amended) ~~The~~An antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof,~~ according to any of claims 23-25 that is capable of inhibiting cell rolling.

Claim 52. (cancelled)

Claim 53. (currently amended) ~~The~~An antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof~~, according to any of claims 23-25 that is capable of inhibiting auto-immune disease.

Claims 54-59. (cancelled)

Claim 60. (currently amended) ~~The~~An antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof~~, according to any of claims 23-25 that is capable of increasing the mortality rate of leukemia cells.

Claim 61. (currently amended) ~~The~~An antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof~~, according to any of claims 23-25 that is capable of increasing the susceptibility of diseased cells to damage by anti-disease agents.

Claims 62-67. (cancelled)

Claim 68. (currently amended) ~~The~~An antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof~~, according to any of claims 23-25 that is capable of inhibiting cell-cell, cell-matrix, platelet-matrix, platelet-platelet, and/ or cell-platelet complex formation.

Claim 69. (currently amended) ~~The~~An antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof~~, according to any of claims 23-25 that is capable of inhibiting cell-cell, cell-matrix, platelet-matrix, platelet-platelet, and/ or cell-platelet adhesion.

Claim 70. (currently amended) ~~The~~An antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof~~, according to any of claims 23-25 that is capable of inhibiting cell-cell, cell-matrix, platelet-matrix,

platelet-platelet, and/ or cell-platelet aggregation.

Claim 71. (currently amended) The~~An~~ antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof,~~ according to any of claims 23-25 coupled to or complexed with an agent selected from the group consisting of anti-cancer, anti-metastasis, anti-leukemia, anti-disease, anti-adhesion, anti-thrombosis, anti-restenosis, anti-autoimmune, anti-aggregation, anti-bacterial, anti-viral, and anti-inflammatory agents.

Claim 72. (currently amended) The~~An~~ antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof,~~ according to claim 71, wherein the agent is an anti-viral agent selected from the group consisting of acyclovir, ganciclovir and zidovudine.

Claims 73-74. (cancelled)

Claim 75. (currently amended) The~~An~~ antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof,~~ according to claim 71, wherein the agent is an anti-autoimmune agent selected from the group consisting of leflunomide, denileukin diftitox, subreum, WinRho SDF, defibrotide, and cyclophosphamide.

Claim 76. (currently amended) The~~An~~ antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof,~~ according to claim 71, wherein the agent is an anti-adhesion/anti-aggregation agent selected from the group consisting of limaprost, clorcromene, and hyaluronic acid.

Claim 77. (currently amended) The~~An~~ antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof,~~ according to claim 71 wherein the agent is selected from the group consisting of toxins, radioisotopes, and

pharmaceutical agents.

Claim 78. (currently amended) ~~The~~An antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof~~, according to claim 77 wherein the toxin is selected from the group consisting of gelonin, *Pseudomonas* exotoxin (PE), PE40, PE38, ricin, and modifications and derivatives thereof.

Claim 79. (currently amended) ~~The~~An antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof~~, according to claim 77 wherein the radioisotope is selected from the group consisting of gamma-emitters, positron-emitters, x-ray emitters, beta-emitters, and alpha-emitters.

Claim 80. (currently amended) ~~The~~An antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof~~, according to claim 77 wherein the radioisotope is selected from the group consisting of ¹¹¹indium, ¹¹³indium, ^{99m}rhenium, ¹⁰⁵rhenium, ¹⁰¹rhenium, ^{99m}technetium, ^{121m}tellurium, ^{122m}tellurium, ^{125m}tellurium, ¹⁶⁵thulium, ¹⁶⁷thulium, ¹⁶⁸thulium, ¹²³iodine, ¹²⁶iodine, ¹³¹iodine, ¹³³iodine, ^{81m}krypton, ³³xenon, ⁹⁰yttrium, ²¹³bismuth, ⁷⁷bromine, ¹⁸fluorine, ⁹⁵ruthenium, ⁹⁷ruthenium, ¹⁰³ruthenium, ¹⁰⁵ruthenium, ¹⁰⁷mercury, ²⁰³mercury, ⁶⁷gallium and ⁶⁸gallium.

Claim 81. (cancelled)

Claim 82. (currently amended) ~~The~~An antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof~~, according to any of claims 23-25 coupled to or complexed with a vehicle or carrier that is capable of being coupled or complexed to more than one agent.

Claim 83. (currently amended) ~~The~~An antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof~~, according to any of claims 23-25 wherein the vehicle or carrier is selected from the group consisting of

dextran, lipophilic polymers, hydrophilic polymers, HPMA, and liposomes.

Claim 84. (currently amended) ~~The~~An antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof~~, according to any of claims 23-25 coupled to or complexed with a radioactive isotope or other imaging agent.

Claim 85. (currently amended) A diagnostic kit comprising ~~the human~~an antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof~~, according to claim 84.

Claim 86. (currently amended) A pharmaceutical composition, comprising ~~the human~~an antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof~~, according to any one of claims 23-25 in an amount effective to inhibit cell rolling.

Claim 87. (cancelled)

Claim 88. (currently amended) A pharmaceutical composition, comprising a human ~~an~~ antibody, antigen-binding fragment thereof, or complex thereof comprising at least one antibody or antigen-binding fragment thereof, according to any one of claims 23-25 in an amount effective to inhibit auto-immune disease.

Claims 89-95. (cancelled)

Claim 96. (currently amended) A pharmaceutical composition, comprising ~~the human~~an antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof~~, according to any one of claims 23-25 in an amount effective to increase the susceptibility of diseased cells to damage by anti-disease agents.

Claims 97-102. (cancelled)

Claim 103. (currently amended) A pharmaceutical composition, comprising the human an antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof~~, according to any one of claims 23-25 in an amount effective to inhibit cell-cell, cell-matrix, platelet-matrix, platelet-platelet, and/ or cell-platelet aggregation.

Claim 104. (currently amended) A pharmaceutical composition, comprising the human an antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof~~, according to any one of claims 23-25 in an amount effective to inhibit cell-cell, cell-matrix, platelet-matrix, platelet-platelet, and/ or cell-platelet complex formation.

Claim 105. (currently amended) A pharmaceutical composition, comprising the human an antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof~~, according to any one of claims 23-25 in an amount effective to inhibit cell-cell, cell-matrix, platelet-matrix, platelet-platelet, and/ or cell-platelet adhesion.

Claim 106. (currently amended) A pharmaceutical composition, comprising the human an antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof~~, according to any one of claims 23-25 coupled to or complexed with an agent selected from the group consisting of anti-cancer, anti-metastasis, anti-leukemia, anti-disease, anti-adhesion, anti-thrombosis, anti-restenosis, anti-autoimmune, anti-aggregation, anti-bacterial, anti-viral, and anti-inflammatory agents.

Claim 107. (currently amended) The pharmaceutical composition, comprising the human an antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof~~, according to claim 106, wherein the agent is an anti-

viral agent selected from the group consisting of acyclovir, ganciclovir and zidovudine.

Claims 108-109. (cancelled)

Claim 110. (currently amended) The pharmaceutical composition, comprising the human an antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof~~, according to claim 106, wherein the agent is an anti-autoimmune agent selected from the group consisting of leflunomide, denileukin diftitox, subreum, WinRho SDF, defibrotide, and cyclophosphamide.

Claim 111. (currently amended) The pharmaceutical composition, comprising the human an antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof~~, according to claim 106, wherein the agent is an anti-adhesion/anti-aggregation agent selected from the group consisting of limaprost, clorcromene, and hyaluronic acid.

Claim 112. (previously presented) A pharmaceutical composition according to claim 106 wherein the agent is selected from the group consisting of toxins, radioisotopes, and pharmaceutical agents.

Claim 113. (previously presented) A pharmaceutical composition according to claim 106 wherein the toxin is selected from the group consisting of gelonin, *Pseudomonas* exotoxin (PE), PE40, PE38, ricin, and modifications and derivatives thereof.

Claim 114. (previously presented) A pharmaceutical composition according to claim 106 wherein the radioisotope is selected from the group consisting of gamma-emitters, positron-emitters, x-ray emitters, beta-emitters, and alpha-emitters.

Claim 115. (previously presented) A pharmaceutical composition according to claim 106 wherein the radioisotope is selected from the group consisting of ¹¹¹indium, ¹¹³indium,

^{99m}rhenium, ¹⁰⁵rhenium, ¹⁰¹rhenium, ^{99m}technetium, ^{121m}tellurium, ^{122m}tellurium, ^{125m}tellurium, ¹⁶⁵thulium, ¹⁶⁷thulium, ¹⁶⁸thulium, ¹²³iodine, ¹²⁶iodine, ¹³¹iodine, ¹³³iodine, ^{81m}krypton, ³³xenon, ⁹⁰yttrium, ²¹³bismuth, ⁷⁷bromine, ¹⁸fluorine, ⁹⁵ruthenium, ⁹⁷ruthenium, ¹⁰³ruthenium, ¹⁰⁵ruthenium, ¹⁰⁷mercury, ²⁰³mercury, ⁶⁷gallium and ⁶⁸gallium.

Claim 116. (cancelled)

Claim 117. (currently amended) A pharmaceutical composition, comprising the human an antibody, antigen-binding fragment thereof, or complex thereof ~~comprising at least one antibody or binding fragment thereof~~, according to any one of claims 23-25 coupled to or complexed with a vehicle or carrier that is capable of being coupled or complexed to more than one agent.

Claim 118. (previously presented) A pharmaceutical composition according to claim 117 wherein the vehicle or carrier is selected from the group consisting of dextran, lipophilic polymers, hydrophilic polymers, HPMA, and liposomes.

Claims 119 -154. (cancelled)

Claim 155. (currently amended) A human An antibody, antigen-binding fragment thereof, or complex thereof comprising at least one antibody or antigen-binding fragment thereof wherein the antibody, antigen-binding fragment or complex thereof that is capable of binding to an isolated epitope comprising GPIb α amino acid sequence TYR 276 to Glu 282, wherein at least one of the amino acids 276, 278 and 279 is sulfated ~~the epitope of claim 153, wherein the binding is enhanced when the epitope of claim 153 further comprises GPIb α amino acids 283-285.~~

Claims 156-163. (cancelled)